

layer may have a correspondingly varying thickness and transparency or color. For locations that are not part of the display area (for example the conductive patterns 30), this is of no consequence. For locations that are a part of the display area, the image signal employed to drive the display may be adjusted to accommodate any variation in transparency or color of the touch screen. By using a transparency or color map wherein each pixel in a display is adjusted in brightness or color to compensate for the transparency of the touch screen, a display with corrected brightness and color may be obtained. As shown in FIG. 9, the means for modifying the image signal 54 to provide a modified image signal 56 that compensates for variations in color or transparency of the touch screen can be provided in a display controller 50 having a lookup table 52 that provides a brightness and/or color adjustment for each pixel element of a display with a touch screen 58.

[0031] The present invention may be used in conjunction with any flat panel display, including but not limited to OLED and liquid crystal display devices. Moreover, a substrate or cover of an OLED display may be used as the substrate for a resistive touch screen.

[0032] The invention has been described in detail with particular reference to certain preferred embodiments thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention. For example, some of the advantages of the present invention may be obtained by combining a variable conductive layer with the conventional silver ink conductors in the edge areas, to reduce the amount of silver ink required and reduce the width of the edge area.

#### Parts List

[0033]	10	resistive-wire touch screen
[0034]	12	substrate
[0035]	14	first conductive layer
[0036]	16	cover sheet
[0037]	18	second conductive layer
[0038]	20	spacer dots
[0039]	30	conductive patterns
[0040]	31	electrical connections
[0041]	32	variably conducting layer
[0042]	33	electrical connections
[0043]	34	conductive layer
[0044]	35	touch area
[0045]	36	highly conductive portions
[0046]	40	continuous substrate
[0047]	42	deposition station
[0048]	44	deposition station
[0049]	46	mask
[0050]	47	material
[0051]	48	area of greater material deposition
[0052]	50	display controller

[0053] 52 look up table

[0054] 54 image signal

[0055] 56 modified image signal

[0056] 58 display

What is claimed is:

1. A resistive touch screen, comprising:

- a transparent substrate defining a touch area;
- a first layer of conductive material formed on the transparent substrate and extending over the touch area;
- an electrical connection to the first layer of conductive material;
- a transparent flexible cover sheet;
- a second layer of conductive material formed on the transparent flexible cover sheet, the cover sheet being mounted in a spaced apart relationship from the substrate, whereby a touch in the touch area results in an electrical contact between the first and second layers of conductive material at the point of touch;
- an electrical connection to the second layer of conductive material; and
- at least one of the first or second layers of conductive material having a variable conductivity.

2. The resistive touch screen claimed in claim 1, wherein the at least one layer of conductive material defines a region of uniform conductivity covering the touch area and an edge area having a higher conductivity than the uniform conductivity, the electrical connection to the at least one layer being made to the edge area.

3. The resistive touch screen claimed in claim 2, wherein the edge area has a variable conductivity effective to linearize electric fields in the touch area of the at least one layer of conductive material.

4. The resistive touch screen claimed in claim 2, wherein the edge area has a variable conductivity effective to compensate for the resistivity of the edge area.

5. The resistive touch screen claimed in claim 2, wherein the edge area has a variable conductivity provided by a pattern of variable width or thickness.

6. The resistive touch screen claimed in claim 1, wherein the at least one layer of conductive material has a variable conductivity in the touch area effective to linearize electric fields in the layer of conductive material in the touch area.

7. The resistive touch screen claimed in claim 1, wherein the substrate is rigid or flexible.

8. The resistive touch screen claimed in claim 1, wherein both the first and second conductive layers have a variable conductivity.

9. The resistive touch screen claimed in claim 1, wherein the layer having variable conductivity comprises ITO.

10. The resistive touch screen claimed in claim 1, wherein the layer having variable conductivity comprises a conductive polymer.

11. The resistive touch screen claimed in claim 8, wherein the layer having variable conductivity comprises polythiophene.

12. The resistive touch screen claimed in claim 1, wherein the conductivity of the layer having variable conductivity is determined by the thickness of the layer.